

Integration Techniques C4

1. By using the substitution $u = 2x - 1$ find $\int \frac{2x}{(2x-1)^2} dx$

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2. Use the substitution $u = \ln x$ to show that $\int_e^{e^2} \frac{1}{x\sqrt{\ln x}} dx = 2\sqrt{2} - 2$

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3. Find $\int_0^{\frac{\pi}{2}} \sin x dx$

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4. Evaluate the following $\int_0^{\frac{\pi}{12}} \tan 3x dx$

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